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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,815	08/26/2003	William F. Howard	WEAT/0313	4562

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EXAMINER	
COLLINS, GIOVANNA M	

ART UNIT	PAPER NUMBER
3672	

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/648,815	HOWARD ET AL.	
	Examiner	Art Unit	
	Giovanna M. Collins	3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *10-17 and 27* is/are allowed.

6)☒ Claim(s) *1-9,18-26,28 and 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 April 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ ~~Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)~~ Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the positioning a pump above a cooling zone must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 1 recites the limitation "the terminus" in line 5. There is insufficient antecedent basis for this limitation in the claim as this limitation has not been previously recited.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 28-29, are rejected under 35 U.S.C. 102(b) as being anticipated by Kisman 6,039,121.

Referring to claims 28-29, Kisman discloses (see fig. 3) a method of pumping well fluids from a wellbore with a higher density and temperature at a lower portion of the wellbore and a second fluid having a lower density and temperature at a higher portion of the wellbore and an interface between the first fluid and second fluid comprising placing a electric submersible pump (50) within a cooling zone (at 20) adjacent the interface (at 12) and operating the pump.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6, 18-23 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kisman '121 in view of Norris et al. 691.

Referring to claim 1 and 26, Kisman discloses (fig. 3) a downhole pumping apparatus, comprising a wellbore (16) having well fluids (9) received therein from a formation into which said wellbore extends, said well fluid having a natural height within said wellbore and an interface between said well fluid and a second, lower density fluid (at 12), at a location spaced from the terminus of said wellbore; a electric submersible pump (50) locatable within said wellbore and positioned intermediate said terminus and said interface; and a cooling zone (at 12) located within said well (col. 7, lines 1-29). Kisman does not disclose a controller. Norris teaches a controller control a downhole pump operation to efficiently produce a desired rate of liquid removal (col. 2, lines 49-54). As it would be advantageous to efficiently produce a desired rate of liquid removal it would be obvious to one of ordinary skills in the art to modify the apparatus disclosed by Kisman to have a controller as taught by Norris.

Referring to claim 2, Kisman discloses said cooling zone comprises a cooling zone (at 12) located intermediate said pump and said terminus (col. 7, lines 1-29).

Referring to claim 3, Kisman discloses said cooling zone further includes a pressure gradient in said well fluid (col. 7, lines 1-29).

Referring to claim 4, Kisman said cooling zone further includes a saturated liquid in said well fluid, with vapor evolving from said liquid in said cooling zone as the liquid enters a region of a lower pressure region of the cooling zone (col. 7, lines 1-29).

Referring to claim 5, Kisman discloses the evolving vapor cools the well fluid (col. 7, lines 1-29).

Referring to claim 6, Kisman disclose (figs. 1-2) said wellbore (6) includes a footed wellbore (at 11) having a section thereof having a generally horizontal component and a span extending between a lower surface of said wellbore and an upper portion of said wellbore; said pump (50) is positioned at the lower surface of said wellbore and a space is provided between said pump and said upper surface of said wellbore; and vaporized gases naturally rise in the wellbore and through said space (col. 7, lines 1-29).

Referring to claims19-20, Kisman discloses the well fluid has a steam dissolved therein, and the steam vaporizes in the cooling zone the steam vapor evolves in the cooling zone, and the evolution cools the well fluid in the bore at and adjacent to the cooling zone (col. 7, lines 1-29).

Referring to claim 18, Kisman discloses a wellbore, comprising, a generally vertical section (at 6) extending from a well head location and into the earth; a footed wellbore section (at 11) extending from said vertical section and having an entry section transitioning said footed wellbore section from the vertical profile of the vertical section to a footed section having a substantial horizontal component (at 1), the intersection region of said transition section and said footed section forming a heel location, well

fluids located in said footed wellbore; a pump (50) located in said wellbore adjacent said heel location, and a cooling zone located in intermediate said footed section (col. 7, lines 1-29). Kisman does not disclose a controller. Norris teaches a controller control a downhole pump operation to efficiently produce a desired rate of liquid removal (col. 2, lines 49-54). As it would be advantageous to efficiently produce a desired rate of liquid removal it would be obvious to one of ordinary skills in the art to modify the apparatus disclosed by Kisman to have a controller as taught by Norris.

Referring to claims 19-20, Kisman discloses the well fluid has a steam dissolved therein, and the steam vaporizes in the cooling zone the steam vapor evolves in the cooling zone, and the evolution cools the well fluid in the bore at and adjacent to the cooling zone (col. 7, lines 1-29).

Referring to claim 21, Kisman discloses said footed wellbore (at 11) includes opposed upper and lower surfaces separated by a bore span dimension; and said pump (50) has a width which is smaller than said span dimension.

Referring to claim 22, Kisman (fig 4) pump (50) is positioned adjacent said lower surface of said heel thereby providing a gas vent space between said pump and said upper surface (at 16) of said footed borehole.

Referring to claim 23, Kisman discloses said cooling zone (at 16) is located intermediate said pump location (50) and the terminus of said footed portion (at 11) of said borehole in the earth.

Referring to claim 25, Kisman discloses a tube (above element 50) extending inwardly of the borehole and connected to the fluid outlet of the pump.

4. Claims 7-9 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kisman '121 in view of Norris et al. 691 as applied to claim 6 further in view of Bownes et al. (5,549,160).

Referring to claim 7, Kisman, as modified, discloses the apparatus of claim 6 but does not discloses the pump is a progressing cavity pump. Bownes teaches using a progressive cavity pump with a rubber stator to pump well fluids (col. 3, lines 9-14). Progressive cavity pumps are well known in the art for removing well fluids. As one of ordinary skill in the art would be familiar with the use of progressive cavity pumps for removing well fluids, it would be obvious to one of ordinary skill in the art to modify the apparatus disclosed by Kisman to include a progressive cavity pump as taught by Bownes.

Referring to claim 8, Bownes teaches the pump includes a rotor that is rotatably driven by a rod extending down the well from a drive mechanism located adjacent the well (col. 3, lines 16-23).

Referring to claim 9, Norris teaches a pressure sense located to detect pressure adjacent the pump and the controller is operatively coupled to the pressure sensor and a drive rod to control rotation of a drive rod in response to pressure of a pump (col. 2, lines 46-55).

Referring to claim 24, Kisman discloses the borehole of claim 23 but does not disclose a drive rod. Bownes teaches using a drive rod to mechanically drive a

progressive cavity pump. Rod driven progressive cavity pumps are well known in the art for removing well fluids. As one of ordinary skill in the art would be familiar with the use of rod driven progressive cavity pumps for removing well fluids, it would be obvious to one of ordinary skill in the art to modify the apparatus disclosed by Kisman to include drive rod to drive the pump as taught by Bownes.

Allowable Subject Matter

5. Claims 10-17 and 27 are allowed.

Response to Arguments

6. Applicant's arguments filed 4/13/05 have been fully considered but they are not persuasive. Referring to the Applicant's arguments concerning the natural height of the well fluids, Kisman in figure 3 does show the well fluids will have a natural height in element (12). Referring to arguments concerning claim 2, as best understood by the examiner, the applicant defines the terminus as the area (see fig. 1, at 16) before the start of the footed section. Using this definition, the cooling zone of Kisman (see Fig. 3, at element 12) is intermediate the terminus (at area near element 19) and the pump (50).

Referring to claims 28-29, Kisman (fig. 3) does disclose placing a pump (50) in a cooling zone adjacent an interface (at 12) where the fluid has cooled to a predetermined temperature.

Applicant's arguments with respect to claims 18-25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Giovanna M. Collins whose telephone number is 571-272-7027. The examiner can normally be reached on 6:30-3 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gmc

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